

Gordon L. Ellis et al. -- Appl. No. 09/914,212

In the Claims

Please replace all previous listings of the claims with the following claims (in the event no claim appears below, the previous version of the claims remain):

1-20. (Cancelled).

21. (Previously presented) An ink composition comprising:

- (a) a hydrophilic polymer having a number average molecular weight less than 30,000;
 - (b) a hydrophobic polymer having a number average molecular weight more than 40,000;
 - (c) carbon black pigment carrying water-dispersible groups; and
 - (d) liquid medium,
- said composition having a viscosity of less than 20 cp at 20 °C.

22. (Previously presented) An ink according to claim 21 wherein component (a) has a number average molecular weight less than 20,000.

23. (Previously presented) An ink according to claim 21 wherein component (b) has a number average molecular weight greater than 60,000.

24. (Previously presented) An ink according to claim 21 wherein component (a) and component (b) are each independently selected from the group consisting of acrylic polymers, polyurethanes and polyesters.

25. (Previously presented) An ink according to claim 21 wherein the hydrophobic polymer comprises a mixture of a hydrophobic acrylic polymer and a hydrophobic polyurethane polymer.

26. (Previously presented) An ink according to claim 21 wherein the hydrophilic polymer is hydrophilic by virtue of the presence of ionic and/or non-ionic water dispersing groups in the hydrophilic polymer.

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27. (Currently amended) An ink according to claim 21 wherein the ink ~~composition~~ has a total concentration of divalent and trivalent metal ions below 5000 parts per million by weight relative to the total weight of the ink.

28. (Cancelled).

29. (Currently amended) An ink according to claim 21 wherein the ~~composition ink~~ has been filtered through a filter having a mean pore size below 10 μ m.

30. (Currently amended) An ink according to claim ~~24~~ 21 which comprises:

- (i) from 0.1 to 10 parts of component (a);
- (ii) from 0.1 to 10 parts of component (b);
- (iii) from 0.1 to 15 parts of component (c); and
- (iv) from 75 to 98 parts of component (d)

wherein all the parts are by weight and the parts by weight of (i) + (ii) + (iii) + (iv) add up to 100.

31. (Cancelled).

32. (Cancelled).

33. (Previously presented) An ink according to claim 21 wherein the carbon black pigment carries ionic groups.

34. (Previously presented) An ink according to claim 21 with the proviso that when components (a) and (b) are both acrylic polymers, components (a) and (b) have been prepared separately.

35. (Previously presented) An ink according to claim 21 with the proviso that when components (a) and (b) are both acrylic polymers and component (b) is prepared in the presence of component (a) then the Tg of component (b) is greater than 40°C.

36. (Previously presented) An ink according to claim 35 where the Tg of component (b) is greater than 45°C.

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37. (Cancelled).
38. (Previously presented) A process for printing an image on a substrate comprising applying thereto an ink according to claim 21 by means of an ink-jet printer.
39. (Currently amended) An ink-jet printer cartridge containing an ink according to claim ~~24~~ 21.
40. (Previously presented) An ink composition comprising:
 - (a) a hydrophilic polyurethane polymer having a number average molecular weight less than 30,000;
 - (b) a hydrophobic polymer having a number average molecular weight more than 40,000;
 - (c) pigment; and
 - (d) liquid medium,said composition having a viscosity of less than 20 cp at 20 °C.
41. (Previously presented) An ink according to claim 40 wherein component (a) has a number average molecular weight less than 20,000.
42. (Previously presented) An ink according to claim 40 wherein component (b) has a number average molecular weight greater than 60,000.
43. (Previously presented) An ink according to claim 40 wherein component (b) is independently selected from the group consisting of acrylic polymers, polyurethanes and polyesters.
44. (Previously presented) An ink according to claim 40 wherein the hydrophobic polymer comprises a mixture of hydrophobic acrylic polymer and hydrophobic polyurethane polymer.

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45. (Previously presented) An ink according to claim 40 wherein the hydrophilic polyurethane polymer is hydrophilic by virtue of the presence of ionic and/or non-ionic water dispersing groups in the hydrophilic polyurethane polymer.

46. (Currently amended) An ink according to claim 40 wherein the ink has ~~having~~ a total concentration of divalent and trivalent metal ions below 5000 parts per million by weight relative to the total weight of the ink.

47. (Currently amended) An ink according to claim 40 ~~which~~ wherein the ink has been filtered through a filter having a mean pore size below 10 μ m.

48. (Previously presented) An ink according to claim 40 which comprises:

- (i) from 0.1 to 10 parts of component (a);
- (ii) from 0.1 to 10 parts of component (b);
- (iii) from 0.1 to 15 parts of component (c); and
- (iv) from 75 to 98 parts of component (d)

wherein all the parts are by weight and the parts by weight of (i) + (ii) + (iii) + (iv) add up to 100.

49. (Previously presented) An ink according to claim 40 wherein the pigment is selected from yellow, red, orange, green, violet, indigo, blue and/or black organic and/or inorganic pigment.

50. (Previously presented) An ink according to claim 40 wherein the pigment is a carbon black pigment.

51. (Previously presented) An ink according to claim 50 wherein the carbon black pigment carries ionic groups.

52. (Previously presented) A process for printing an image on a substrate comprising applying thereto an ink according to claim 40 by means of an ink-jet printer.

53. (Previously presented) An ink-jet printer cartridge containing an ink according to claim 40.